

Title: The effect of cross-fostering on the transfer of cellular and humoral maternal immunity to *Mycoplasma hyopneumoniae* – NPB #07-023 **REVISED**

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Abstract

Enzootic pneumonia resulting from Mycoplasma hyopneumoniae infections is an important disease to the US swine industry. Antibodies and immune cells specific to this agent can be detected after vaccination and dams can transfer this immunity to their piglets. It is necessary to understand how cross-fostering can affect passive transfer for *Mycoplasma* and the protective role of those immune components. Therefore, the goals of this research were to examine the impact of maternally derived immunity against *M. hyopneumoniae* and potential influence of cross-fostering on immunity and protection from challenge. To examine the first objective, that of examining the effect of cross-fostering on immune transfer, the offspring of vaccinated and unvaccinated dams were cross-fostered at 0, 6, 12 and 20 hrs post suckling (hps) and humoral and cell mediated immunity in the offspring was assessed. Anti-*M. hyopneumoniae* antibodies were transferred to piglets regardless of source, as long as the piglet was fostered before 6 hps. Immune cells were absorbed by piglets that suckled from their own mothers or by a proportion of piglets, born from unvaccinated mothers, cross-fostered onto vaccinated ones within the first 6 hps. To evaluate the second objective, that of protection from challenge in piglets receiving different immune components, one-week old piglets were challenged with a virulent strain of *M. hyopneumoniae*. Piglets were divided into groups regarding their status for immune components to *Mycoplasma*: (1) No immune components, (2) Immunoglobulins + cells. (3) Only immunoglobulins, (4) and only cells. Piglets with or without cells or antibodies were infected with the bacteria, showed coughing, shed the pathogen and had lung lesions associated with *Mycoplasma*. Animals born from vaccinated mothers appeared to shed the agent later and in a smaller proportion than the other groups, but differences were not statistically significant.

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